

Treatment Intervention Advisory Committee Review and Determination

Date: February 23, 2018

To: Wisconsin Department of Health Services

From: Wisconsin Department of Health Services Treatment Intervention Advisory Committee: *LCK*
Lana Collet-Klingenberg, Ph.D. (chairperson)

RE: Determination of Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH) as a proven and effective treatment for children and adults

This is an initial review

This is a re-review. Previously reviewed (rated) on January 29, 2016 (2); April 24, 2015 (2), and January 2014 (3).

No new research located; determination from month, year stands (details below)

Section One: Overview and Determination

Please find below a statement of our [determination](#) as to whether or not the committee views Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH) as a proven and effective treatment. In subsequent sections you will find documentation of our review process including a [description](#) of the proposed treatment, a [synopsis](#) of review findings, the [treatment review evidence checklist](#), and a listing of the [literature](#) considered. In reviewing treatments presented to us by the Department of Health Services, we implement a review process that carefully and fully considers all available information regarding a proposed treatment. Our determination is limited to a statement regarding how established a treatment is with regards to quality research. The committee does not make decisions regarding funding.

Description of proposed treatment

Treatment and Education of Autistic and Communication Related Handicapped Children (TEACCH) is an intervention model for individuals of all ages and skill levels with autism spectrum disorders. TEACCH was developed in by Eric Scholpler at at University of North Carolina (UNC) Chapel Hill in the early 1970s. TEACCH is founded on the theoretical and conceptual principles based on cognitive-social learning theory, developmental theory, neuropsychological theories of executive function, and applied behavioral analysis (ABA). At the core of TEACCH is the idea of structured teaching. Structured teaching is comprised of 3 components: physical organization, scheduling, and teaching methods. Components of TEACCH strategies focus on physical and visual structure, schedules, work systems and task organization. Individualized systems aim to address difficulties with communication, organization, generalization, concepts, sensory processing, change and relating to others.

Synopsis of current review (February 2018)

Committee members completing current review of research base: Amy Van Hecke and Lana Collet-Klingenberg

Please refer to the reference list ([Section Four](#)) which details the reviewed research.

The committee's conclusions regarding TEACCH include : that a prior re-review identified an expanded literature search including books, chapters, discussion articles, manuals of procedure, in addition to research studies (including both single case and group designs). Our current literature review adds one additional study to those previously found. This peer-reviewed, randomized controlled trial design (Turner-Brown et al., 2016) found that Family Implemented TEACCH for Toddlers (FITT) significantly improved autism severity and imitation of toddlers with ASD, and improved parent mental health and stress. While neither the NPDC (National Professional Development Center) or NAC (National Standards Project) identify TEACCH as an evidence-based practice (please note that the NPDC did not review comprehensive treatment packages), it is included on a treatments list on the ASHA (American Speech-Language Hearing Association) website with a notation as to it having evidence of effectiveness (<http://www.asha.org/PRPSpecificTopic.aspx?folderid=8589934980§ion=Treatment>), and the National Academy of Sciences review has identified it as one of 10 model comprehensive treatment packages for ASD (National Research Council, 2001). This evidence, along with identification of 10 studies (three single-case; three group designs; three quasi-experimental; and one mixed methods), that demonstrated some level of improved outcomes related to the TEACCH intervention, lead us to maintain our recommendation that TEACCH be identified as a Level 2 treatment with established or moderate evidence.

In sum, it is the decision of the committee that TEACCH remain a Level 2 treatment with established or moderate evidence.

Committee's Determination: After reviewing the research and applying the criteria from the [Treatment Review Evidence Checklist](#), it is the decision of the committee that TEACCH retain an efficacy rating of Level 2 treatment with established or moderate evidence.

Review history

(January 2016)

In the case of TEACCH, please refer to the attached reference listing that details the reviewed research. The committee's conclusions regarding TEACCH include : that our most recent re-review identified an expanded literature search including books, chapters, discussion articles, manuals of procedure, in addition to research studies (including both single case and group designs). Our current literature review did not add any additional studies to those previously found. While neither the NPDC (National Professional Development Center) or NAC (National Standards Project) identify TEACCH as an evidence-based practice (please note that the NPDC did not review comprehensive treatment packages), it is included on a treatments list on the ASHA (American Speech-Language Hearing Association) website with a notation as to it having evidence of effectiveness (<http://www.asha.org/PRPSpecificTopic.aspx?folderid=8589934980§ion=Treatment>). This evidence, along with identification of 10 studies (three single-case; three group designs; three quasi-experimental; and one mixed methods), that demonstrated some level of improved outcomes related to

the TEACCH intervention, lead us to maintain our recommendation that TEACCH be identified as a Level 2 treatment with established or moderate evidence.

In sum, it is the decision of the committee that TEACCH remain a Level 2 treatment with established or moderate evidence.

(April 2015)

The committee found that in past reviews there were concerns with the design of many of the studies, thus limiting the studies considered as evidence of effectiveness. However, with this re-review we have expanded our search to look at the varied body of literature on the intervention including books, chapters, discussion pieces, and manuals of procedure, in addition to research studies (including both single case and group designs). This last review found additional studies not found in the first review. Within the body of research studies, there is a subset of studies specific to the use of TEACCH in home settings. These are indicated with a single asterisk (*) in the reference list. The Virues-Ortega, Julio, and Pastor-Barriuso (2013) meta-analysis, while indicating a number of concerns with the thirteen included studies (which included only two of the home-based TEACCH studies reviewed here), found limited evidence, particularly in social and maladaptive behavior. The authors concluded that there was limited support for TEACCH programs, but that additional research should be done. While neither the National Professional Development Center (NPDC) or National Autism Center's National Standards Project (NSP) identify TEACCH as an evidence-based practice (note that the NPDC did not review comprehensive treatment packages), it is included on a treatments list on the ASHA (American Speech-Language Hearing Association) website with a notation as to it having evidence of effectiveness (<http://www.asha.org/PRPSpecificTopic.aspx?folderid=8589934980§ion=Treatment>). This evidence, along with the fact that we were able to find 10 studies (three single-case; three group designs; three quasi-experimental; and one mixed methods), each showing some level of improved outcomes related to the TEACCH intervention, lead us to the recommendation that TEACCH be re-designated as a level 2 therapy with established or moderate evidence.

In sum, it is the decision of the committee that TEACCH be designated as a level 2 therapy with established or moderate evidence.

(January 2014)

Nine studies were included in our review (see attached table). Each study included children (ranging in age from 2 to 13 years across studies) who were identified as having ASD (seven studies) or ASD and “cognitive disability” (two studies). In the appended table, we have described each study on the basis of (a) participants, (b) treatment groups or phases, (c) research design, (d) outcome measures, and (e) findings.

In sum:

- Three studies used a quasi-experimental, experimental-control group, pretest-posttest design and found higher gains and/or higher posttest performance on specific outcomes for the TEACCH group compared to a non-randomized control group. It should be noted that only one study (Ozonoff & Cathcart, 1998) used matched experimental and control groups; the groups were not matched in the other two studies.
- One study used a multiple baseline design with random assignment of children to baseline condition. The measured outcome was observed “independent functioning” (i.e., without teacher prompts) on

structured tasks, which increased, on average, from 16% (baseline) to 35% when the TEACCH program was introduced.

- Five studies used a non-experimental, one-group, pretest-posttest design; each documented significant gains for children who received the TEACCH program on specific outcomes.

Finally, one recent meta-analytic review of 13 studies evaluating the efficacy of TEACCH with both children and adults with ASD (Virus-Ortega et al., 2013; see citation on the following page) found a moderate ES of .47, pooled across all outcomes and all studies. Based on their analysis of research designs and measured outcomes, these authors concluded that the evidence provides “limited, but emerging support) for the TEACCH program.

Section Two: Rationale for Focus on Research Specific to Comprehensive Treatment Packages (CTP) or Models

In the professional literature, there are two classifications of interventions for individuals with Autism Spectrum Disorder (National Research Council, 2001; Odom et al., 2003; Rogers & Vismara, 2008):

- (a) **Focused intervention techniques** are individual practices or strategies (such as positive reinforcement) designed to produce a specific behavioral or developmental outcome, and
- (b) **Comprehensive treatment models** are “packages” or programs that consist of a set of practices or multiple techniques designed to achieve a broader learning or developmental impact.

To determine whether a treatment package is proven and effective, the Treatment Intervention Advisory Committee (TIAC) will adopt the following perspective as recommended by Odom et al. (2010):

The individual, focused intervention techniques that make up a comprehensive treatment model may be evidence-based. The research supporting the effectiveness of separate, individual components, however, does *not* constitute an evaluation of the comprehensive treatment model or “package.” The TIAC will consider and review only research that has evaluated the efficacy of implementing the comprehensive treatment *as a package*. Such packages are most often identifiable in the literature by a consistently used name or label.

National Research Council. (2001). *Educating children with autism*. Washington, DC: National Academy Press.

Odom, S. L., Brown, W. H., Frey, T., Karusu, N., Smith-Carter, L., & Strain, P. (2003) Evidence-based practices for young children with autism: Evidence from single-subject research design. *Focus on Autism and Other Developmental Disabilities, 18*, 176-181.

Odom, S. L., Boyd, B. A., Hall, L. J., & Hume, K. (2010). Evaluation of comprehensive treatment models for individuals with Autism Spectrum Disorders. *Journal of Autism and Developmental Disorders, 40*, 425-436.

Rogers, S., & Vismara, L. (2008). Evidence-based comprehensive treatments for early autism. *Journal of Clinical Child and Adolescent Psychology, 37*, 8-38.

Section Three: TIAC Treatment Review Evidence Checklist

Name of Treatment: TEACCH

Level 1- Well Established or Strong Evidence (DHS 107 - Proven & Effective Treatment)

- Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, National Professional Development Center) have approved of or rated the treatment package as having a strong evidence base; authorities are in agreement about the level of evidence.
- There exist ample high quality studies that demonstrate experimental control and favorable outcomes of treatment package.
 - Minimum of two group studies or five single subject studies or a combination of the two.
 - Studies were conducted across at least two independent research groups.
 - Studies were published in peer reviewed journals.
- There is a published procedures manual for the treatment, or treatment implementation is clearly defined (i.e., replicable) within the studies.
- Participants (i.e., N) are clearly identified as individuals with autism spectrum disorders or developmental disabilities.

Notes: At this level, include ages of participants and disabilities identified in body of research

Level 2 – Established or Moderate Evidence (DHS 107 - Proven & Effective Treatment)

- Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have approved of or rated the treatment package as having at least a minimal evidence base; authorities may not be in agreement about the level of evidence.
- There exist at least two high quality studies that demonstrate experimental control and favorable outcomes of treatment package.
 - Minimum of one group study or two single subject studies or a combination of the two.
 - Studies were conducted by someone other than the creator/provider of the treatment.
 - Studies were published in peer reviewed journals.
- Participants (i.e., N) are clearly identified as individuals with autism spectrum disorders or developmental disabilities.

Notes: (February 2018) Toddlers with ASD aged 1.5-3 years and their parents. (April 2015) Participants were young children with ASD with ages ranging between 2 and 5 years and their parents.

Level 3 – Emerging Evidence (DHS 107 – Promising as a Proven & Effective Treatment)

- Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have recognized the treatment package as having an emerging evidence base; authorities may not be in agreement about the level of evidence.
- There exists at least one high quality study that demonstrates experimental control and favorable outcomes of treatment package.
 - May be one group study or single subject study.
 - Study was conducted by someone other than the creator/provider of the treatment.
 - Study was published in peer reviewed journal.
- Participants (i.e., N) are clearly identified as individuals with autism spectrum disorders or developmental disabilities.

Notes: At this level, include ages of participants and disabilities identified in body of research

Level 4 – Insufficient Evidence (Experimental Treatment)

- Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have not recognized the treatment package as having an emerging evidence base; authorities are in agreement about the level of evidence.
- There is not at least one high quality study that demonstrates experimental control and favorable outcomes of treatment package.
 - Study was conducted by the creator/provider of the treatment.
 - Study was not published in a peer reviewed journal.
- Participants (i.e., N) are not clearly identified as individuals with autism spectrum disorders or developmental disabilities.

Notes:

Level 5 – Untested (Experimental Treatment) &/or Potentially Harmful

- Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have not recognized the treatment package as having an emerging evidence base; authorities are in agreement about the level of evidence.
- There are no published studies supporting the proposed treatment package.
- There exists evidence that the treatment package is potentially harmful.**
 - Authoritative bodies have expressed concern regarding safety/outcomes.
 - Professional bodies (i.e., organizations or certifying bodies) have created statements regarding safety/outcomes.

Notes: At this level, please specify if the treatment is reported to be potentially harmful, providing documentation

References Supporting Identification of Evidence Levels:

- Chambless, D.L., Hollon, S.D. (1998). Defining empirically supported therapies. *Journal of Consulting and Clinical Psychology, 66(1)* 7-18.
- Chorpita, B.F. (2003). The frontier of evidence---based practice. In A.E. Kazdin & J.R. Weisz (Eds.). *Evidence-based psychotherapies for children and adolescents* (pp. 42---59). New York: The Guilford Press.
- Odom, S. L., Collet-Klingenberg, L., Rogers, S. J., & Hatton, D. (2010). Evidence-based practices in interventions for children and youth with autism spectrum disorders. *Preventing School Failure, 54(4)*, 275-282.

Section Four: Literature Review

Literature reviewed for current determination:

- *Turner-Brown, L., Hume, K., Boyd, B.A. and Kainz, K., 2016. Preliminary efficacy of family implemented TEACCH for toddlers: Effects on parents and their toddlers with autism spectrum disorder. *Journal of autism and developmental disorders*, pp.1-14.
- National Research Council (2001) *Educating Children with Autism*. Committee on Educational Interventions for Children with Autism. Catherine Lord and James P.McGee, eds. Division of Behavioral and Social Sciences and Education. Washington, DC.

Literature reviewed for previous determinations:

Boyd, B.B., Hume, K., McBee, M/B., Alessandri, M., Gutierrez A., Johnson, L., Sperry, L., Odom, S.L.. Comparative Efficacy of LEAP, TEACCH and Non-Model- Specific Special Education Programs for Preschoolers with Autism Spectrum Disorders *J Autism Dev Disord* (2014) 44:366–380 DOI 10.1007/s10803-013-1877-9

*Braiden, H.J., McDaniel, B., McCrudden, E., Janes M, and Crozier, B., (2012), A Practice-based Evaluation of Barnardo's Forward Steps Early Intervention Programme for Children Diagnosed with Autism. *Child Care in Practice* Vol. 18, No. 3, July 2012, pp. 227-242

Brower, C. M., Miltenberger, R.G., Gross, A., Fuqua, W.A., Breitwieser, J. The use of concurrent operants preference assessment to evaluate choice of interventions for children diagnosed with autism. *The international; Journal fo Behavioral Consultation and Therapy*.
<http://files.eric.ed.gov/fulltext/EJ826966.pdf>

Callahan K., Shukla-Mehta, S, Magee, S, Wie, M. (2010). ABA Versus TEACCH: The Case for Defining and Validating Comprehensive Treatment Models in Autism. *J Autism Dev Disord* (2010) 40:74–88 DOI 10.1007/s10803-009-0834-0

D'Elia, L., Valeri, G., Sonnino, F., Fontana L., Mammone, A., and Vicari, S. (2014). A Longitudnal Study of the Teacch Program in Different Settings: The Potential Benefits of Low Intensity Intervention in Preschool Children with Autism Spectrum Disorder *J Autism Dev Disord* (2014) 44:615–626 DOI 10.1007/s10803-013-1911-y

Hume, K., Plavnick, J., and Odom, S.L. (2012), Promoting Task Accuracy and Independence in Students with Autism Across Educational Setting Through the Use of Individual Work Systems *J Autism Dev Disord*, 42:2084–2099. DOI 10.1007/s10803-012-1457-4

Ichikawa, K., Takahashi, Y., Ando, M., Ishizaki, T., Yamaguchi, H., and Nakayama, T., (2013). TEASCCH-based group social skills training for children with high functioning autism: a pilot randomized control trial. *BioPsychoSocial Medicine* 2013, 7:14
<http://www.bpsmedicine.com/content/7/1/14>

Mavropoulou, S., Papadopoulou, E., and Kakana, D..(2011). Effects of Task Organization on the Independent Play of Students with Autism Spectrum Disorders. *J Autism Dev Disord* (2011) 41:913–925 DOI 10.1007/s10803-010-1116-6

Ortega, J.V., Juliob, F.M., and Barriuso, R.B. (2013). The TEACCH program for children and adults with autism: A meta-analysis of intervention studies. *Clinical Psychology Review* 33 (2013) 940–953

*Ozonoff, S., & Cathcart, K. (1998). Effectiveness of a home program intervention for young children with autism. *Journal of autism and developmental disorders*, 28 (1), 25-32.

Panerai S., Zingale, M., Trubia, G., Finocchiaro, M, Zuccarello R., and Elia, R.F.M. (2009). Special Education Versus Inclusive Education: The Role of the TEACCH Program . *J Autism Dev Disord* (2009) 39:874–882. DOI 10.1007/s10803-009-0696-5

Probst P., and Leppert, T., (2008). Brief Report: Outcomes of a Teacher Training Program for Autism Spectrum Disorders. *J Autism Dev Disord* (2008) 38:1791–1796 DOI 10.1007/s10803-008-0561-

*Short, A. (1984). Short-term treatment outcome using parents as co-therapists for their own autistic children. *Journal of child psychology and psychiatry and allied disciplines*, 25 (3), 443-458.

*Welterlin, A., Turner-Brown, L.M., Harris, S., Mesibov, G., & Delmolino, L. (2012). The home TEACCHing program for toddlers with autism. *Journal of autism and developmental disorders*, 42 (9), 1827-1835.

*pertains to use of TEACCH in home settings